

the third-stage larvae developed in the lungs and returned to the intestine as fourth-stage larvae.

The migration of *N. muris* to the lungs appears to be an essential part of their life history, irrespective of their path of entry into the body of the host.

It may be concluded that *N. muris* passes through three distinct developmental phases in the course of its life cycle, namely: (1) The free-living stage, involving one ecdysis, following which the worms emerge as second-stage infective larvae; (2) the pulmonary parasitic stage, in the course of which the larvae develop to the third stage and finally to the fourth stage, the latter stage preceded by an ecdysis; (3) the intestinal parasitic stage in the course of which the larvae grow to the fifth or final stage, preceded by a third ecdysis, followed subsequently by the development of the worms to fertile maturity.

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ZOOLOGY.—*Sphaeropomatus miamiensis, a new genus and species of Serpulid polychaete.*¹ AARON L. TREADWELL. (Communicated by MARY J. RATHBUN.)

In May 1933, Captain John W. Mills presented to the United States National Museum an unusually large and perfect specimen of the fresh-water shrimp *Macrobrachium jamaicense* from the Miami River,

¹ Published by permission of the Secretary of the Smithsonian Institution. Received March 12, 1934.

Florida, upon the carapace of which were a number of Serpulid worm tubes. These tubes upon examination were found to belong to a new genus and species of annelid which I now name *Sphaeropomatus miamiensis*.

Sphaeropomatus, n. gen.

Peculiar toothed setae borne on the first thoracic somite. Collar prominent, thoracic membrane small. Operculum spherical, supported on a smooth



Figs. 1-5.—*Sphaeropomatus miamiensis*. Fig. 1.—Anterior end of body showing operculum with blood spheres, $\times 20$. A few eggs lie under the thoracic membrane. Fig. 2.—Detail of rachis with filaments, $\times 68$. Fig. 3.—Toothed seta from first somite, $\times 250$. Fig. 4.—Genuiculate abdominal seta, $\times 250$. Fig. 5.—Thoracic uncinus, $\times 600$. Fig. 6.—Operculum of *Mercierella enigmatica* after Munro, $\times 23$. Figs. 7, 8.—*Ficopomatus* sp. after Southern. Figs. 7.—Toothed seta from first somite. Fig. 8.—Operculum.

heavy stalk. No spines or other processes on the operculum. Tube calcareous, smooth, cylindrical.

Sphaeropomatus miamiensis, n. sp.

The body of the type is 8 mm. long (including the branchiae), and is never more than 0.5 mm. broad. Branchiae not more than 7 on a side, with heavy rachids (fig. 2), and long, slender filaments, the end of each rachis being bare. From 6 to 9 dark brown bands cross the rachis continuing on to the filaments. The lesser number occurs where the bands have coalesced and are accordingly broader. Similar pigment shows on the uncinal region of the thorax, but elsewhere the body is uncolored. The opercular stalk is formed of the dorsalmost rachis of one side. I cannot say if it is always on

the same side. In normal conditions the operculum is evidently spherical, but in most of my material it is more or less wrinkled. It sometimes contains rounded bodies (fig. 1), commonly regarded as eggs, but they more probably are, as maintained by McIntosh (1926), masses of coagulated blood. The collar (fig. 1), is one-lobed, the halves separated on the dorsal surface. The thoracic membrane is obscure, most clearly visible at its posterior end. The eggs, in the specimen drawn, were lying between the thoracic membrane and the body wall.

There are 6 thoracic somites. On the first is a tuft of rather long setae which are toothed on the terminal portions. At the base of the tuft are a

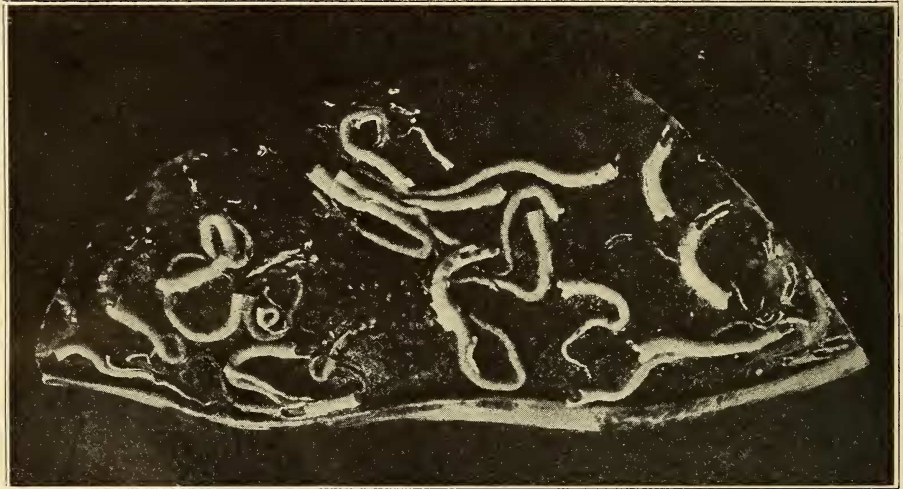


Fig. 9.—Part of carapace of *Macrobrachium jamaicense* showing worm tubes, $\times 2$.

few very small and slender simple setae without any teeth. Other thoracic setae are smooth, sharp-pointed and not limbate. Uncini begin on the second thoracic somite and continue throughout the body in a single row in each torus. The toothed setae of the first somite are of especial interest. Each (fig. 3) is widened toward the end and then curves to end in a sharp point. At the widening is a double row of teeth, only one row being visible in profile. The basal teeth are very small, the following ones are larger as far as the fifth which is the heaviest of all. Beyond this there is a progressive diminution in size. The other thoracic setae are as described above. The thoracic uncini are extremely small, but under a magnification of 1200 diameters it is possible to see that each carries 10 minute sharp teeth and a basal knob (fig. 5). Abdominal uncini are similar to these but are more narrowly triangular in form. Abdominal setae are geniculate and small, carrying minute denticulations along the margin of the blade (fig. 4). Especially in the posterior abdominal somites these have very long shafts which extend to a considerable distance from the body wall.

The pygidium is bilobed, each lobe short and thick.

The tubes containing the animals were found attached to the carapace of a shrimp *Macrobrachium*. They are very small at the beginning but enlarge rapidly. In cross section they are circular and the surface is smooth (fig. 9).

Three genera of serpulids having toothed setae in the first somite have been described, all found in water supposedly fresh, but probably more or less brackish. *Mercierella* Fauvel (1922, pp. 424-430) was originally found in a canal at Caen, France, and *Ficopomatus* Southern (1921, p. 655) was collected in Chilka Lake, India. *Sphaeropomatus* differs from *Mercierella* in not having a prominent reflexed collar and in having an operculum devoid of spines. As figured by Munro (1924, p. 655), *Mercierella* has prominent spines on the surface of the operculum (fig. 6). The toothed setae are similar in the two genera as are the uncini, but from figures given by Fauvel and Munro I infer that the latter are much smaller in *Sphaeropomatus*. The tube of *Mercierella* has at intervals circular shelf-like rings which do not appear in *Sphaeropomatus*. For *Ficopomatus* Southern does not give the character of the collar, but the operculum (fig. 8) and the toothed setae are very different. A comparison of the two setae is given in figs. 3 and 7. The tube of *Ficopomatus* is described as flattened along the line of attachment and as having a longitudinal ridge along its outer border.

The type is No. 20074 in the collections of the United States National Museum.

The specimens were sent me by Dr. W. L. Schmitt of the U. S. National Museum, who found them when studying the shrimp *Macrobrachium* from the Miami River, Florida. I am also indebted to Dr. Schmitt for portions of the carapace of the shrimp on which were a number of tubes. Acknowledgment is made to Mr. C. R. Shoemaker for sending the precise diagnosis of *Ficopomatus*.

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ZOOLOGY.—*Descriptions of three bird nematodes, including a new genus and a new species.*¹ EVERETT E. WEHR, Bureau of Animal Industry. (Communicated by ELOISE B. CRAM.)

I

The first lot of nematodes to be described and figured in this paper was collected from a king rail, *Rallus elegans*, by Dr. Albert Hassall in 1893. The preserved specimens, consisting of two males and three females and representing a new species, *Schistorophus cucullatus*, were

¹ Received March 12, 1934.